AMENDMENTS TO THE SPECIFICATION

On page 2, line 1 and 2, please amend as follows:

~~Title of the Invention~~

A self regulating rotor

On page 3, paragraph 2, please amend as follow:

Rotors, with both horizontally and vertically oriented axis, have been designed as windmills and wind turbines to capture energy from the wind. There is a great need for devices that can generate electricity from the energy in the wind. Windmill generated electricity can be stored in batteries. It can replace the need for communities in the third world to purchase kerosene for lighting. Wind generated electricity can also power ~~ultra-violet~~ ultra-violet water ~~disinfections~~ disinfection and purification systems which can give third world countries a source of clean drinking water. Windmill generated electricity is a non- polluting source of electricity, and will continue to find greater use ~~through-out~~ throughout the world.

On page 5, paragraph 1, please amend as follow:

Vertical axis rotor ~~wind-mills~~ windmills have inherent advantages of stability due to gyroscopic action of their rotors and simplicity of design due to the avoidance of yaw mechanisms and blade controls. Vertical axis rotors have been designed

to increase the energy that can be captured from the wind. Vertical axis rotors that in cross section have the appearance of an S-shape are seen in prior art and will hereafter be ~~refereed~~ referred to as S-shaped rotors.

On page 5, paragraph 2, please amend as follow:

An S-shaped rotor is disclosed in U.S. Pat. No. 1,646,673 to Wilson. Wilson discloses a vertical axis wind driven ~~turbines~~ turbine windmill, manually adjusted that consists of a plural segmented cylindrical shaped construction, the segments of which may relatively be adjusted to provide an enclosed cylinder, or which may be laterally moved to provide vanes having various degrees of extension, allowing its drive shaft to rotate at varying speeds. In a fully opened configuration the segments form an S-shaped rotor.

On page 5, paragraph 3, please amend as follow:

In U.S. Pat. No. 1,697,574 to Savonius another vertical axis wind rotor is disclosed. The Savonius device comprises a rotor disposed on the vertical axis which has complementary vertically and longitudinally extending elements rotatable about an individual axis to define in horizontal cross section an essentially S-shaped configuration. This device known as the ~~s-shaped~~ S-shaped rotor resembles the cylindrical rotor of professor Gustav Magnus and

is distinguishable in that oppositely arranged complementary vanes overlap to define between them a centrally S-shaped air passage of consistent area, which Savonius found enhanced the speed and torque developed by the rotor. Among its advantages, the Savonius S-shaped rotor

On page 7, paragraph 2, please amend as follow:

And finally in U.S. Pat. No. 4,293,274 Gilman discloses a helically shaped vertical axis S-shaped rotor that regulates its speed of rotation by lateral movements of its vanes from a ~~close~~ closed cylinder to open S-shaped rotor through the use of extensive linkages.

On page 9, line 1, please amend as follow:

~~Objections~~ Objects and Summary of the Invention

On page 9, last 2 lines , please amend as follow:

Yet another object of the invention is a rotor design that generates low ~~nose~~ noise levels when operating.

On page 13, paragraph 2 , please amend as follow:

A preferred embodiment of the present invention is illustrated in Figs. 1 and Fig 7. Fig 1 shows a perspective view of a single rotor section and Fig 7 shows a front perspective view of a two rotor section assembly. It is understood that the word cups in the specifications can also include vanes. We define a cup to include a vane. In Fig 1 a set of cups 30 and 40 are pivotally attached about a central axis 21, such that they form a closed three dimensional shape when rotated into a closed orientation (Fig 5), and when rotated into an open orientation form an ~~s-shaped~~ S-shaped rotor when seen from a horizontal cross section (Fig 3). A central axis 21, is defined as the center of rotation of a central main shaft.

On page 13, paragraph 3 , please amend as follow:

Fig 1 shows a set of cups 30 and 40, that are attached to cup shafts 32 and 42, such that cups 30 and 40 can be pivoted from a closed shape (Fig 5), to an open ~~s-shape~~ S-shape rotor (Fig 3). Cup shafts 32 and 42 are pivotally attached to endplates 22 and 24. End plates 22 and 24 are attached to a central main shaft 20. A rotational energy connecting element 71, controls the simultaneous rotation of cup shafts. A rotational energy connecting

On page 14, paragraph 2 , please amend as follow:

Fig 7 shows one set of cups 30 and 40 attached to cup shafts 32 and 42. Cup shafts 32 and 42 are pivotally attached to end plates 22 and 24. End plates 22 and 24 are attached to a central main shaft 20. Fig 7 shows a second set of cups 50 and 60 attached to cup shafts 52 and 62. Cup shafts 52 and 62 are pivotally attached to end plates 26 and 28., such that cups 50 and 60 can be pivoted from a closed shape to an open ~~s-shape~~ S-shaped rotor. End plates 26 and 28 are attached to a central main shaft 20 such that they are rotated ninety degrees form the lower set of end plates 22 and 24. A rotational energy connecting element 71, is located between end plates 24 and 26 and is shown (Fig 1), consisting of a timing belt 70, and timing pulleys 34, 44, 54 and 64 which are connected to cup shafts 32, 42, 52 and 62. Rotational speed sensors 73, are located between end plates 24 and 26 and are shown (Fig 9) as lever arms 36, 46, 56 and 66 with their corresponding weights 37, 47, 57 and 67 which are attached to cup shafts 32, 42, 52 and 62 respectively.

On page 15, paragraph 1 , please amend as follow:

Fig 7 and Fig 10 show a ~~breaking~~ braking device 75, made up of a ~~break~~ brake disk 84 attached to the central main shaft 20, and a ~~break~~ brake caliper 86 attached to the lower rotor support 83.

On page 16, paragraph 2 and 3 , please amend as follow:

In Fig 1, Fig 3 and Fig 7 cups 30 and 40 are in an open orientation. The ~~s-shape~~ S-shape rotor relationship catches the wind resulting in rotation of the rotor. Wind enters the inside of cup 30 and then is redirected to the inside of cup 40. The forces created by air moving against and around cups 30 and 40 is carried through their cup shafts 32 and 42 to the upper and lower end plates 22 and 24. End plates 22 and 24 are connected to the central main shaft. The central main shaft receives the torque generated by cups 30 and 40.

In Fig 7 a second rotor assembly is stacked above the first, with the upper rotor rotated 90 degrees relative to the lower. Upper rotor cups 50 and 60 are also in an open orientation, ~~s-shape~~ S-shape relationship, that catches the wind energy and delivers torque through their cup shafts 52 and 62 to their upper and lower end plates 26 and 28, which are connected to the main shaft 20.
The rotor cups are able to change their relative orientations into the most aerodynamically desirable configurations that will best suit any particular condition the rotor is operating in. Rotor cups may take their shapes from segments of three dimensional forms such as cylinders, spheres, cones or free form shapes. It is understood that the word cups in the specifications can also include vanes.

On page 16, last line , please amend as follow:

In an open ~~s-shaped~~ S-shaped orientation the cups have their greatest area exposed to the wind and produce their highest starting torques.

On page 17, paragraphs 1 and 2 , please amend as follow:

As the wind increases, the ~~rotors'~~ rotor's rotational speed increases. Rotational speed sensors 73, located on the rotor, respond to the increase in rotational speed by rotating cup shafts and the cups attached to the shafts into orientations that best suite conditions and wind speeds the rotor is operating in. In Fig 6A cups 30 and 40 are shown in a fully open s-shape orientation. As the wind speed increases, the ~~rotors~~ rotor's rotational speed increases. The rotational speed sensor 73, responds by rotating the cup shafts 32 and 42 resulting in less exposed cup area to the wind. Fig 6B, Fig 6C and Fig 6D show increased cup shaft rotation and the closing of the cups. In Fig 6E the cups are rotated into a closed form, with little or no exposed area to catch the wind.

On page 17, last paragraph , please amend as follow:

As the rotational speed of the rotor increases the lever arm weights 37, 47, 57, and 67, swing outward from the center of rotation, against the spring tension. The outward movement of the lever arms rotates the cup shafts 32, 42, 52, and 62 and reduces the exposed area to the wind of the cups 30, 40, 50, and 60. As the wind speed lessens, the ~~retors'~~ rotor's rotational speed lessens, spring tension pulls the lever arms back toward the center of rotation, and the cups open up.

On page 20, paragraph 1 , please amend as follow:

In this embodiment, the closed shape has less projections to be exposed to wind and weather such as freezing rain, ice and snow. The closed shape, because of its shape and form, are easily adaptable to populated areas, where the public's main opposition to ~~wind mill~~ windmill sighting has been safety and appearance.